EQUITY IN MOTION

MATH ASSIGNMENT Analysis Findings

The Education Trust

WHAT WE *DID*

We collected two weeks' worth of middle school math assignments from 12 middle schools in six different school districts across three states.

We defined assignments as any in-school or out-of-school task that a student completed independently or with a group of peers.

We reviewed a total of 1,853 math assignments, collected from 63 teachers in 91 courses, ranging from Math 6 through Geometry.

WHAT WE *FOUND*

ALIGNMENT

More than **70%** of math assignments were at least partially aligned with one or more grade- or course-appropriate Common Core math content standards. And over **two-thirds** of these aligned tasks addressed multiple standards, either within the same domain or across domains in the same grade level.

Aligned to at least part of one grade- or course-appropriate Common Core math content standard / **73%**

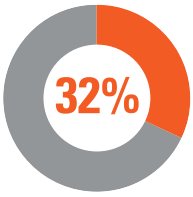
Addresses multiple standards within the same grade or course / **68%**

COGNITIVE CHALLENGE

only **9%** of assignments pushed student thinking to higher levels. The overwhelming majority required low cognitive demand, with more than 9 out of 10 assignments limiting students to recalling a fact, performing a simple procedure, or applying basic knowledge to a skill or concept.

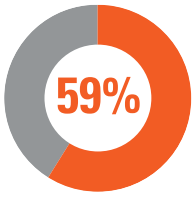
COGNITIVE CHALLENGE OF ASSIGNMENTS

Based on Norman L. Webb's Depth of Knowledge (DOK) Levels



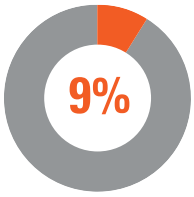
RECALL AND REPRODUCTION

Recall a fact, term, principle, concept; perform a routine procedure or a simple algorithm; or apply a formula.



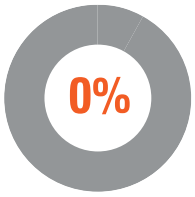
BASIC APPLICATION OF SKILLS/CONCEPTS

Use information, apply conceptual knowledge, select appropriate procedures, complete two or more steps with decisions, complete routine problems, organize/display data, or interpret/use sample data.



STRATEGIC THINKING

Requires reasoning or developing a plan or sequence of steps to approach problem; some decision-making and justification; abstract, complex, or non-routine; often more than one possible answer.



EXTENDED THINKING

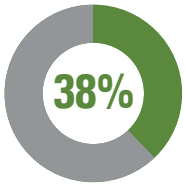
An investigation or application to real world; requires time to research, problem-solve, and process multiple conditions; requires non-routine manipulations across disciplines/ content areas/multiple sources.

For a copy of our Math Assignment Analysis Guide, go to: **www.edtrust.org/equityinmotion**

ASPECTS OF RIGOR

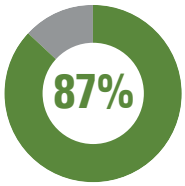
Assignments were more than twice as likely to focus on procedural skills and fluency compared with conceptual understanding or application of a mathematical concept. Only **39%** of assignments incorporated varied types of mathematical representations.

ASPECTS OF RIGOR IN ASSIGNMENTS



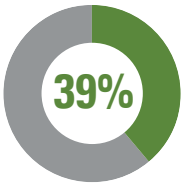
CONCEPTUAL UNDERSTANDING

Students access concepts from a number of perspectives in order to see math as more than a set of mnemonics or discreet procedures.



PROCEDURAL SKILLS AND FLUENCY

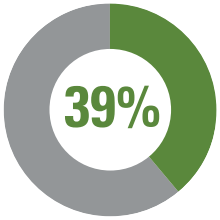
Students have speed and accuracy in calculation in order to have access to more complex concepts and procedures.



APPLICATION

Students use math in situations that require mathematical knowledge.

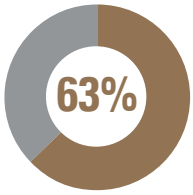
MULTIPLE REPRESENTATIONS



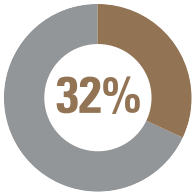
COMMUNICATING MATHEMATICAL UNDERSTANDING

Less than one-third, **32%** of math assignments provided an opportunity for students to communicate their thinking or justify their responses. The majority of assignments were answer-focused and did not ask students to justify or explain their thinking at any point within the task.

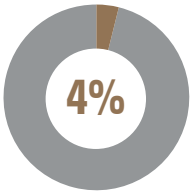
WRITING DEMAND OF ASSIGNMENTS



No writing or communication

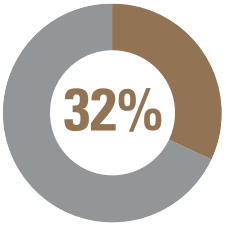


Short phrases up to 2 sentences



Paragraph or more

OPPORTUNITY TO COMMUNICATE MATHEMATICAL UNDERSTANDING



MOTIVATION AND ENGAGEMENT

Students were rarely given opportunities for choice in their assignments, **3%**, and only **2%** of tasks provided some aspect of relevancy using real-world experiences. Very few assignments went beyond superficial attempts to connect with real-world events or students' own personal experiences.

CHOICE AND RELEVANCY

Students have choice in the assignment in one of the following areas: content, product, process, or mathematical tool / **3%**

The task is relevant. It focuses on a poignant topic, uses real-world materials, and/or gives students the freedom to make connections to their experiences, goals, interests, and values / **2%**

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